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same nature with the extravasated humours. What was contained in the lesser ones proved to be of different colour and consistence, not unlike Gelly, White of Eggs, Gall, and Honey; in some it was much like the humour of a true *Meliceris*.

I must observe, that there was but little matter extravasated in the Cavity of the *Abdomen*; most part was contained betwixt the *Peritoneum* and the Muscles.

The Right Kidney was effected with a particular Drop sic; all the *Viscera* besides were in a natural state, two *Polypus*'s were found in the Heart, and two pretty big Stones in the Gall Bladder.

An Account of a Book, By James Douglas, M. D.
 V. De Aure Humana Tractatus; In quo integra Auris Fabrica, multis novis Inventis, & Iconismis illustrata, describitur; omniumque ejus Partium Usus indagantur. Quibus interposita est Musculorum Uvulae, atque Pharyngis nova Descriptio, & Delineatio. Auctore Antonio Maria Valsalva Imolensi, Philosophiae & Medicinae Doctore, in Bononiensi Universitate ad Incisionem & Osthensionem Anatomicam Professore Conducto, necnon Nosocomii Incurabilium Chirurgo. Bononiae MDCCIV. In Quarto.

THe Author divides the Humane Ear into three Cavities, viz. the External, which contains the Audicle, and the Auditory passage; The Middle, which com-

comprehends the *Tympanum*, or Cavity of the Barrel, In which are the four little Bones, &c. And the Internal, which contains the Labyrinth, which he farther divides into the *Vestibulum*, Semicircular Canals and *Cochlea*.

The Prominence called *Helix* ends in the Lobe of the Ear, which it constitutes, and that called *Anthelix* terminates in the *Antitragus*.

He gives the common Names to the Cavities that lye between the Eminencies of the Auricle, and divides the *Concha* into two Cavities, *viz.* the Superior and Inferior.

Under the Skin of the Auricle he takes notice of a great number of Glands, which, from the likeness of the Humour they separate to that of Tallow or *Sebum*, he calls *Glandulæ Sebaceæ*: Which Liquor being carried to the surface of the Skin, he aliedges hardens there, and turns into a scaly greasie substance, much like to that of Bran.

That there are abundance of such Glands under the Skin of the Head, he thinks that the greasiness of the Hair, and the Dandriff that's combed from the Head, may be a sufficient proof.

The Lobe of the Ear, and the lower part of the *Helix*, are made up of a duplicature of the common Integuments, without any Cartilage: In no part of the Auricle, except in these two, is the *Membrana adiposa* conspicuous.

Besides the commonly described Processes or Eminencies of the Auricle, formed by the Windings of its Cartilage, he takes notice of another that's small and acute, situate near the beginning of the auditory passage.

He has discovered some little Glands, of the Conglobate or Lymphatick kind, which, with respect to their situation upon the *Tragus*, he calls *Glandulæ Tragi*: These are sometimes three in number, sometimes two, but for the most part there's only one of them to be found in each Auricle.

To the four external Muscles of the Auricle, described by *Casseri*, he adds a new one of his own discovery, and names it, *Musculus Auriculæ Anterior*. It springs from the Investing Membrane of the Temporal Muscle, above that part of the *Zygoma*, which proceeds from the *Os temporis*: Thence running streight down, it splits into two parts, one being inserted into the fore part of the superior Cavity of the *Concha*; the other a little higher into the fore part of the Cavity of the *Scapha*.

He says the posterior Muscles of the *Auricula* vary as to their number in different subjects; there being sometimes four, and sometimes but two of them; yet for the most part there are three in each Auricle.

Besides these, he describes two Internal Muscles belonging to this part; which he says none has hitherto taken notice of.: One he calls *Musculus Tragi*, the other *Musculus anti-traginus*, according to their situation; but in Bodies lean and emaciated they are not to be seen, as he owns himself.

He has discovered a new Ligament, which fastens the Auricle to the *Processus Zygomaticus* of the Temple Bone:

Upon filling the *Meatus auditorius* with Wax, he observes that in the beginning it ascends a little, then about its middle it's crooked downwards; again it runs upwards and then downwards to the *Membrana Tympani*, by which it is obliquely shut.

He describes the *Ineifura*, or Slits in the cartilaginous part of this passage, more accurately than *Monf. Duverney* has done.

When the *Membrana Adiposa* comes to the beginning of this *Meatus*, its Flethy Fibres are spread upon it in a reticular manner, and in the *Area's* or spaces between, the Glands which separate the *Cerumen* are placed.

The Cavity of this Auditory Tube in a *Fœtus* is very much contracted, and filled with a whitish stuff; which in process of time dries, falls off, and comes out with the

the *Ceramen* ; yet sometimes it hardens into a Membrane, which sticking close to the *Membrana Tympani*, hinders the free access of the Air, and so causes a Deafness, till it is removed by Art.

Our Author observes in the back part of the Auricle a Vein, which he says none has hitherto taken notice of, and calls it *Occipitalis*, because it receives several Twigs from other parts about the *Occiput*, from all which it brings back the refluxent Blood into the lateral *Sinus's*, piercing the *Cranium* at a hole behind the *Processus Mamillaris*.

None of the branchings of the hard portion of the Auditory Nerve are spread upon the backside of the Auricle, as some write and delineate, for the Nerves that supply that part come out between the first and second *Vertebra colli* : A twig of this Nerve running upon the back of the *Antitragus* is sometimes successfully cauterized in the Tooth-ach.

It's very probable, that there are Lymphaticks both in the Auricle and Auditory passage.

That the *Membrana Tympani* is made up of two Membranes is very apparent in a *Fœtus*, the innermost of which is from the *Dura mater*, and the outermost is only an expansion or continuation of that fine Skin that invests the *Meatus Auditorius*.

He thinks the passing of the Smoke of Tobacco from the Mouth by the Ears, the evacuating of *Pus*, &c. from the Barrel the same way, seem to evince the necessity of a Perforation, or *Hiatus*, in the *Membrana Tympani* ; tho none of his repeated Experiments were so successful as to discover it hitherto.

He reckons the *Sinus's* of the *Processus Mamillares*, which are divided into several Cavernous Cells, as part of the cavity of the Barrel, because they communicate with it : And in some other Animals, where these *Sinus's* are wanting, the *Cavitas Tympani* is considerably larger.

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The head of the *Malleus* lyes hid in the beginning of the *Sinus Mastoideus*, but is no ways connected thereto.

In its *Manubrium* or Handle he demonstrates three Processes, which he names *major*, *minor* and *minimus*. To the three Muscles of the *Malleus*, he gives the same names of its Processes to which they are inserted.

Musculus processus majoris, first discovered by *Eustachius*, rises from the Cartilaginous part of the *Tuba Eustachiana*, and not from that Bony Canal, which runs laterally upon the Osseous part of the same; then running along that Canal, it enters the Barrel, where its Tendon being inflected a little downwards, is inserted in the *Processus malleoli major*. He says, that none have taken notice of the true Origin of this Muscle before him, notwithstanding its rising from the Tube, does very much conduce to Hearing.

Musculus processus minoris, is the *laxator auris externus* : he reprehends some modern Anatomist for omitting the description of this Muscle, tho fairly described by *J. Casserius* long ago.

Musculus processus minimi begins at the side of the Barrel that's next the Face, and running along the same, it comes to its Insertion, being inflected under the *Chorda Tympani*, in the smallest process of this Bone.

The *Incus* is joyned by small Ligaments to the *Malleus*, whence these Bones have either no motion at all, or but a very obscure one between themselves. The long Leg of the *Incus* runs parallel with the handle of the *Malleus*, whose extremity is crooked a little downwards : Its shortest Leg is connected to the side of the *Sinus Mammillares* by a Ligament, which yet allows it a small motion.

The Bone that *Sylvius* discovered should be called *Ovale*, from its Figure, and not *Orbiculare*, since it's not round.

The Figure of the Basis of the *Stapes* comes nigh an *Elliptick*; yet its margin is a little defective on one side. Its convex is towards the *Labyrinthe Vestibulum*, and Concave towards its Head. Its Bony substance is so thin, that it is almost

almost transparent, and not pierced with holes, as a certain Modern describes it.

The Sides or Branches of the *Stapes* are furrowed on the inside ; the space between being sometimes shut with a Membrane, and often but half shut ; but for the most part he observes no Membrane at all between them. The *Stapes* stands on the *Foramen Ovale* in a middle position, between Vertical and Horizontal ; it shuts this hole exactly, being fastened to its Margin by a thin Membrane, but yet so loosely, that it has the freedom of moving up and down ; which motion he thinks contributes much to Hearing ; for upon opening the Ear of one that had been very long deaf, he observed, that the Ossification of this very Membrane was the only cause of his deafness. The fleshy Belly of the *Musculus Stapes*, first discovered in a Horse by *Casserius Placentinus*, is contained in a Bony Channel, excavated about the middle of the true *Fallopian* aqueduct, laterally from which its Tendon is obliquely carried to the head of the Stirrop.

Tho' those four little Bones have no *Periostium*, yet several Blood Vessels run upon them, and enter their Substance, which is very compact and hard ; the *Stapes* indeed is something brittle, not because its more porous than the rest, but because it consists only but of one Bony *Lamella*.

The *Fenestra rotunda* he sometimes observes to be of an Oval Figure : The Membrane that shuts it is fasten'd lower down than its Margin.

He describes several small holes that pierce the *Cranium*, and open into the *Tympanum* just above the articulation of the *Malleus* and *Incus*, by these extravasated Blood or Purulent Matter, contain'd within the Skull, may be carried into the Cavity of the Barrel ; from whence they may either pass thro' the *Hiatus* in the *Membrana Tympani*, or else by the *Tuba Eustachii*, and so be evacuated by the Mouth. He proves the existence of such holes by injection, and two practical observations.

The Duct that goes from the Ear to the Palate, he calls from its Figure and first observer, *Bartholomeus Eustachius, Tuba Eustachiana*: Its consists of a Bony, Cartilaginous, Membranous and Flefhy part. The Membrane that lines it is full of Glands.

For, to dilate and keep this Tube open, he has found out a new Muscle, which *novus Tubæ Musculus*, as he calls it, rises Flefhy from that portion of the Tube that's between the beginning of its Cartilaginous part and its extremity; hence descending obliquely by the lower part of the Internal *Ala* of the *Processus Pterigoides*, it becomes Tendinous, which growing broader again, is so inserted into the Inferior Margin of the Membrane, that covers the *Foramina narium*; where it joyns with its fellow on the other side.

The *Uvula*, which he considers as part of the *Pharynx*, is moved by three pair of Muscles, one known long ago, but ill describ'd, and two new ones discovered by himself.

1. *Salpingo-staphilinus*, it rises from the Inferior Bony part of the *Eustachian Tube*, whence it descends obliquely to its Insertion into the Basis of the *Uvula*, where it joyns its Fibres with its Partner-Muscle on the other side.

2. *Glosso-staphilinus*, this comes from the lower part of the Tongue, and ends near the middle of the *Uvula*.

3. *Pharngo-staphilinus*, it has a large and broad beginning from the lower part of the *Pharynx*, whence ascending and passing under the *Tonsillæ*, it terminates at the side of the *Uvula* laterally.

When we Inspect the Mouth of a living person, the two Arches or Risings we observe at the sides of the *Uvula* proceed from the swelling of the two last described Muscles.

In the *Pharinx* he observes three Orifices, one that leads to the Mouth, another to the Nose, and a third to the *Oesophagus*; all which are dilated and contracted by the following Muscles, whose descriptions do extreamly agree with the Life, as I also observed in the same Subject.

1. *Pharingo-staphilinus*, or *Staphilo-pharyngeus*, it's the same with the third Muscle of the *Uvula*, and serves the motions of both in common, being by some falsely called *Cephalo-Pharyngeus*.

2. *Glossopharyngeus*. Falsly called by some *Sphæno-Pharyngeus*. Its origin is in common with the *Glossostaphilinus*, whence it goes round the upper part of the *Pharynx*, uniting with its fellow of the other side by a Tendinous line.

3. *Stylo-pharyngeus*. He adds nothing to the known description of this Muscle.

4. *Hyopharyngeus*. This has a double Origin, one from the Horns of the *Os Hyoides*, the other from the Cartilaginous Appendages near the Basis of that Bone; from whence it surrounds part of the *Pharynx*, and joyns with its Partner by a middle line.

He adds, that a Violent contraction of this pair of Muscles may cause a luxation of the foresaid Appendages, which hinders deglutition till reduced.

5. *Thyropharyngeus*. Rises from the sides of the *Cartilago Thyroidea*, and like the former, goes round the *Pharynx*, uniting with its fellow in its middle and back part.

6. *Cricopharyngeus*. Rises from the Cartilage of that name, and like a Sphincter surrounds the beginning of the *Oesophagus*.

Tho I design'd not at this time to have made any remarks upon what our Author advances in this Treatise, referring that to another opportunity, yet I cannot refrain from one reflexion *en passant*; which is this: Had the accurate *Valsalva* read and examin'd what Mr *Comper* has wrote some time since, of the Muscular Structure of the *Fauces* in his excellent Book of *reformed Myotomy*, an Abstract of which our Author might have seen in the *Acta Eruditorum*, published anno 1696. *Suppl. Tom. ii. pag. 508*. He had certainly obliged us with a better and more compleat account of its Muscles, for he has wholly omitted the most considerable part of Mr *Comper's Musculus Pterigopharyngeus*,

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which

which rises from the *Processus Pterigoides*, being satisfied with describing only the lower part of it, which springs from the Tongue and the *Os Hyoides*, which he makes to be two pair of distinct Muscles. I wonder how he came to overlook this, which I always observed to appear in Dissection, as Mr *Comper* has described it, since his happy Industry has lead him to the discovery of several parts in the Ear, &c. which are not to be found in any Book extant.

He says the *Musculus Chondroglossus*, described by a certain Modern, is not always to be found.

The Artery that furnishes this Cavity with Blood goes off from the Carotide, while in its oblique Canal in the *Os Petrosum*: And the Vein that carries back the reflux Blood opens into the *Diverticulum* of the Jugular Vein. He thinks it may have Lymphaticks as well as the external Cavity of the Ear.

He reckons the *Chorda Tympani* to be a twig of the *Portio dura*.

He says, that there are twelve Orifices that open into the *Vestibulum*, viz. the *Fenestra Ovalis*, the five Orifices of the Semicircular Canals, one of the Canals of the *Cochlea*, and five holes that admit so many twigs of the *Portio mollis Nervi Auditorii*.

He distinguishes the Semicircular Canals into the *major*, *minor* or *minimus*.

He is very nice in adjusting the different lengths of these Canals, and the proportions they bear to one another in their Diameters, which are different in different subjects, but always alike in both Ears of the same subject.

The *Cochlea* consists of a *Modiolus* or Cone and a *Septum*, which divides it into two Canals, which he calls *Scala*; that which respects the *Fenestra rotunda* is the *Scala Tympani* or *Superior*; the other which communicates with the *Vestibulum* he calls the *Vestibuli Scala*: He is also very curious in ascer-

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taining the difference between the two *Scale*: He remarks that Modern Anatomists do err in the position of these *Scale* or turnings; for what they call the superior he rightly names the inferior, & *è contrà*. Its *Septum* is made up of two substances, one hard but very friable, call'd *Lamina Spiral**is*, the other soft, thin and pellucid, which he calls by a new name *Zona Cochleæ*.

The Canal, by which the Auditory Nerves enter, he divides into the common, which admits both the soft and hard pair together, and the particular, which contains only the *Portio Dura*: He observes that it's this particular Canal in which the hard portion lyes, that *Follop**ius* first discover'd and nam'd it, *ob similitudinem, Aquæductus*: The *Tuba Eustachii* is very faulty, tho' now commonly so call'd.

He observes, that as the *Portio dura* turns aside from the common Channel into its own, it detaches one Branch, which going out, at a hole in the inside of the *Os Petros**um*, spreads itself upon the *Dura Mater* and Trunk of the 5th pair of Nerves in several small Twigs.

In the bottom of the common Canal, he takes notice of three small Sinuosities or Cavities, one descends towards the Centre of the *Cochlea*, in which are several holes for the entry of part of the *Portio mollis*, where it is dilated into a very fine Membrane which makes the *Zona Cochleæ*; the second goes towards the *Vestibulum*, through which the *Portio mollis* enters by five holes, where its twigs or branchings are presently expanded into a very fine Membrane, which lines all its surface, being further continu'd thro' all the Semicircular ducts: This Nervous expansion, from its resemblance to a very thin and narrow Ribbond or Fillet, he calls *Zona*, and from its use, *Sonora*, of which he reckons three, according to the number of Canals: He says, these *Zonæ Sonoræ*, are very conspicuous in several Quadrupdes, and in Volatils especially.

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The *Labyrinth* has both Veins and Arteries, tho' its Cavity is not invested with any *Periostium* for to support them, but whether they proceed from those diffused thro' the *Os Petrosum*, or if they enter together with the *Auditory Nerves*, he cannot positively determine.

He doubts not but these Vessels are also accompanied with *Lymphaticks*, as well as those of the *Retina*, as he has observed in the Eye of an Ox.

For the use of the Parts, on which our Author is exceeding large, I refer the Reader to the Book itself, which is enriched with a number of curious Cuts, especially of the parts relating to the Ear, drawn from the Life, and well Engraven.

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